IS 5894 (2005): Rubber Hose for Sand Blasting [PCD 13: Rubber and Rubber Products]

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IS 5894 : 2005
ISO 3861 : 1995

भारतीय मानक

बालू और ग्रिट विस्फोटन के लिए रबड़ के होज़ — विशिष्टि

(दूसरा पुनरीक्षण)

Indian Standard

RUBBER HOSES FOR SAND AND GRIT BLASTING — SPECIFICATION

(Second Revision)

ICS 25.220.10, 83.140.40

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

April 2005

Price Group 2

NATIONAL FOREWORD

This Indian Standard (Second Revision) which is identical with ISO 3861 : 1995 'Rubber hoses for sand and grit blasting — Specification' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendations of the Rubber and Rubber Products Sectional Committee and approval of the Petroleum, Coal and Related Products Division Council.

The text of ISO Standard has been proposed to be approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their places, are listed below along with their degree of equivalence for the editions indicated. However, that International Standard cross-referred in this adopted ISO Standard, which has subsequently been revised, position in respect of that latest ISO Standard has been given:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 1746 : 1983 Rubber or plastics hoses and tubing — Bending tests	IS 12656 : 1989 Rubber plastics hoses and tubing — Bending tests	Identical
ISO 8033 : 1991 Rubber and plastics hose — Determination of adhesion between components	IS 3400 (Part 24) : 2001 Methods of test for vulcanized rubbers: Part 24 Rubber and plastics hose — Determination of Adhesion between components	do

The Technical Committee responsible for the preparation of this standard has reviewed the provision of the following International Standards and has decided that they are acceptable for use in conjunction with this standard:

International Standards	*Title*
ISO 37 : 1994	Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties
ISO 188 : 1982	Rubber, vulcanized — Accelerated ageing or heat-resistance tests
ISO 1307 : 1992	Rubber and plastics hoses for general-purpose industrial applications — Bore diameters and tolerances, and tolerances on length
ISO 1402 : 1994	Rubber and plastics hoses and hose assemblies — Hydrostatic testing
ISO 4649 : 1985	Rubber — Determination of abrasion resistance using a rotating cylindrical drum device
ISO 4671 : 1984	Rubber and plastics hose and hose assemblies — Methods of measurement of dimensions

(*Continued on third cover*)

AMENDMENT NO. 1 MAY 2007
TO
IS 5894 : 2005/ISO 3861 : 1995 RUBBER HOSES FOR SAND AND GRIT BLASTING — SPECIFICATION

(Second Revision)

(*Third cover, para* 5) — Insert the following Para 6 after Para 5:

'The standard also makes a reference to the BIS Certification Marking of the product, details of which are given in National Annex. The National Annex provides the details of the use of the Standard Mark.'

(*Third cover, para* 6) — Insert the following National Annex after Para 6:

'NATIONAL ANNEX A
(*National Foreword*)

A-1 BIS CERTIFICATION MARKING

The product may also be marked with the Standard Mark.

A-1.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.'

(PCD 13)

Reprography Unit, BIS, New Delhi, India

Indian Standard

RUBBER HOSES FOR SAND AND GRIT BLASTING — SPECIFICATION

(Second Revision)

1 Scope

This International Standard specifies the requirements for rubber hoses for wet and dry sand and grit blasting, suitable for use up to a maximum working pressure of 0,63 MPa.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 37:1994, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties.*

ISO 188:1982, *Rubber, vulcanized — Accelerated ageing or heat-resistance tests.*

ISO 1307:1992, *Rubber and plastics hoses for general-purpose industrial applications — Bore diameters and tolerances, and tolerances on length.*

ISO 1402:1994, *Rubber and plastics hoses and hose assemblies — Hydrostatic testing.*

ISO 1746:1983, *Rubber or plastics hoses and tubing — Bending tests.*

ISO 4649:1985, *Rubber — Determination of abrasion resistance using a rotating cylindrical drum device.*

ISO 4671:1984, *Rubber and plastics hose and hose assemblies — Methods of measurement of dimensions.*

ISO 7326:1991, *Rubber and plastics hoses — Assessment of ozone resistance under static conditions.*

ISO 8031:1993, *Rubber and plastics hoses and hose assemblies — Determination of electrical resistance.*

ISO 8033:1991, *Rubber and plastics hose — Determination of adhesion between components.*

3 Dimensions

3.1 Bore

Bore diameters shall be in accordance with the nominal dimensions given in table 1. The tolerances shall be in accordance with ISO 1307.

Table 1 — Bore diameters

Nominal bore mm
12,5
16
19
20
25
31,5
38
40
45
50
51

3.2 Cut lengths

The tolerances on cut lengths of hose shall be as specified in ISO 1307.

3.3 Thickness of rubber lining and cover

When measured in accordance with ISO 4671, the minimum thickness of the rubber lining shall be 5,0 mm and that of the rubber cover 1,0 mm.

4 Physical properties of lining and cover

4.1 Testing

Tests shall be carried out on test sheets of the appropriate rubber compound vulcanized to the same state of cure as the hose.

4.2 Tensile strength and elongation at break

When tested in accordance with ISO 37, the rubber used for the lining and cover shall have a tensile strength and elongation at break of not less than the values given in table 2.

Table 2 — Minimum values of tensile strength and elongation at break

Component	Tensile strength MPa	Elongation at break %
Lining	14	400
Cover	10	300

4.3 Accelerated ageing

After ageing as specified in ISO 188 for 3 days at a temperature of 70 °C ± 1 °C, the tensile strength and elongation at break of the rubber used for the lining and cover, as determined by ISO 37, shall not vary from the initial values by more than the values given in table 3.

Table 3 — Maximum variation in tensile strength and elongation at break after ageing

Property	Maximum % variation from initial values
Tensile strength	±25
Elongation at break	+ 10 to − 30

4.4 Abrasion resistance (lining only)

When determined in accordance with method A of ISO 4649, the volume loss shall not exceed 140 mm^3.

5 Performance requirements for finished hose

5.1 Testing

Tests shall be carried out on test pieces cut from full manufactured lengths of hose.

5.2 Hydrostatic-pressure requirements

When tested in accordance with ISO 1402, the hose shall comply with the requirements of table 4. The hose test piece used for the burst pressure test shall be discarded after the test.

Table 4 — Hydrostatic-pressure requirements

Property	Requirement
Proof pressure	1,25 MPa
Change in diameter at proof pressure	±10 %
Change in length at proof pressure	±8 %
Twist at proof pressure (max.)	60°/m
Burst pressure (min.)	2,5 MPa

5.3 Flexibility

When determined in accordance with method A of ISO 1746:1983, using a minimum diameter of curvature C of ten times the nominal bore (see table 1), the ratio T/D of the external diameter T of the hose, when bent, to the external diameter D of the unbent hose shall not be less than 0,8.

5.4 Ozone resistance

When tested in accordance with ISO 7326, the hose cover shall show no signs of cracking.

5.5 Adhesion

When determined in accordance with ISO 8033, the adhesion between the lining and reinforcement, between layers of reinforcement and between re-

inforcement and cover shall not be less than 2,0 kN/m.

5.6 Electrical resistance

When determined in accordance with subclause 3.6 of ISO 8031:1993, the resistance of the finished hose shall not exceed 2,0 MΩ/m $\left(2 \times 10^6\ \Omega/m\right)$.

Alternatively, by agreement between the manufacturer and the purchaser, dissipation of static electricity may be ensured by the inclusion of a bonding wire. The bonding wire shall consist of at least nine strands and the metal used shall have a high resistance to fatigue.

6 Marking

The hose shall be continuously and durably marked at least every 1 m with the following information:

a) the number of this International Standard, i.e. ISO 3861;

b) the manufacturer's name or identification;

c) the manufacturer's product identification (optional);

d) the nominal bore;

e) the maximum working pressure (0,63 MPa);

f) the quarter (using 1Q, 2Q, 3Q or 4Q) and year (using four digits) of manufacture.

(*Continued from second cover*)

International Standard	*Title*
ISO 7326 : 1991	Rubber and plastics hoses — Assessment of ozone resistance under static conditions
ISO 8031 : 1993	Rubber and plastics hoses and hose assemblies — Determination of electrical resistance

In reporting the results of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc : No. **PCD 13 (2170).**

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110 002
Telephones : 2323 0131, 2323 3375, 2323 9402 *Website :* www.bis.org.in

Regional Offices :		*Telephones*
Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110 002	2323 7617, 2323 3841
Eastern	: 1/14 C. I. T. Scheme VII M, V. I. P. Road, Kankurgachi, KOLKATA 700 054	2337 8499, 2337 8561, 2337 8626, 2337 9120
Northern	: SCO 335-336, Sector 34-A, CHANDIGARH 160 022	260 3843, 260 9285
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